



# FACT SHEET



## MDA FACT SHEET

# SYSTEMS INTEGRATION AND ENGINEERING

## INTRODUCTION

The Missile Defense Agency (MDA) Systems Engineering and Integration (MDA/SE) mission is to plan, oversee and execute the systems engineering and integration activities of the BMD Program to ensure the successful development of the BMD System (BMDS) – Block and Element capability specifications, as well as the design, development and verification of MDAS capability. Detailed systems engineering and integration is executed in collaboration with the BMDS Element development programs to produce an evolving BMDS that is highly capable, robust, evolvable, flexible and cost effective. MDA/SE employs the full spectrum of classical systems engineering as well as innovative approaches, such as capability based requirements development, to ensure the integration of multiple missile defense Elements across the boost, midcourse and terminal tiers into a single coherent BMDS. The Directorates within MDA/SE include: System Definition; Capability Allocation; Systems Analyses; Block Integration and Management; Verification; Engineering Control; and Element Design.

## SYSTEM DEFINITION

The System Definition Directorate's mission is to provide the overall definition of the BMD System. This includes the establishment of the BMD System Technical Objectives and Goals (TOG). The TOG sets the top-level objectives and measures that guide the development of the BMD System and is derived from many sources including policy guidance, User requirements, fiscal constraints, predicted capability, and operational considerations. Also included are the establishment and maintenance of the BMDS Adversary Capability Reference Document (ACRD) that is used to drive the development of the BMDS Blocks. The ACRD provides a common, stable, configuration controlled threat specification across all BMDS activities.

## CAPABILITY ALLOCATION

The Capability Allocation Directorate's mission is to translate the BMDS TOG into BMD System Capability Specifications (SCS) that are executable in evolving BMD System Blocks. This is accomplished through both a bottoms up (Element capability) and top down (TOG flow down) approach resulting in a BMD System. Specification that meets the top-level objectives and goals and is executable by the Element development programs. Specific capability requirements are allocated to the Elements along with the interface specifications necessary to ensure integrated capability.

## SYSTEM ANALYSES

The System Analyses Directorate's mission is to provide a coherent focus to the BMD System through the conduct of analyses to support the development and balancing of an integrated and layered BMD System. This includes conducting effectiveness analysis to establish the expected BMD System capability, conducting trade studies to support BMD System evolution and conducting assessments to support annual BMD System and Element Reviews.

## BLOCK INTEGRATION MANAGEMENT

The Block Integration and Management Directorate's mission is to synthesize the system definition, capability allocation and system analyses into coherent and executable Blocks. This includes the management of reference BMD System (s) for each Block and the definition of Block metrics, measures and verification requirements. New and innovative concepts and technologies are evaluated for integration into appropriate Blocks.

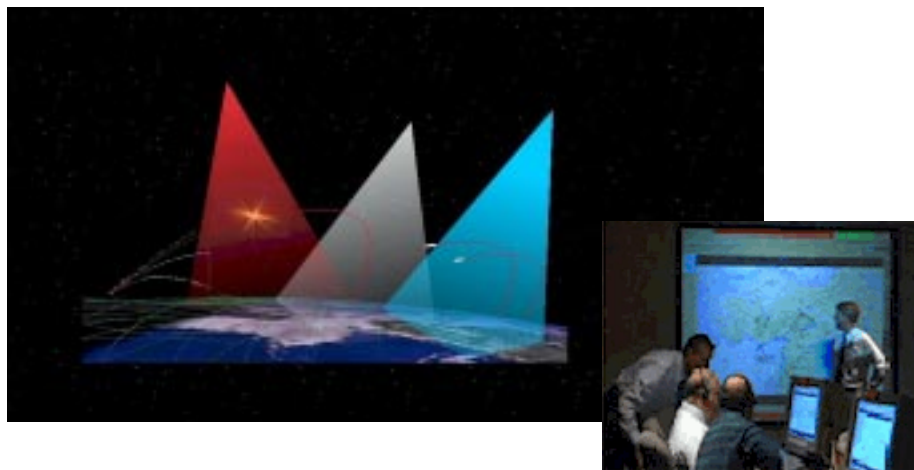
MARCH 2002

## VERIFICATION

The Verification Directorate's mission is to verify BMD System capability through integrated testing. This includes the establishment of the BMD System Verification Plan as well as the objectives and requirements for the testing (digital, ground and flight testing) of each Block's capability. Verification is achieved through a series of analyses and structured test events designed to assess the Block's ability to meet the SCS. Additionally, system-level Technical Performance Measures are tracked throughout the Block development process.

## ENGINEERING CONTROL

The Engineering Control Directorate's mission is to provide the engineering discipline and control necessary to successfully develop an integrated BMDS. This includes the execution of the BMD System -level Configuration Management process that controls all of the system-level definitions, specifications and references. Also included is the execution of the BMD System Risk Management program that will maintain a consolidated BMD System risk picture and manage the efficient mitigation of risks.



## ELEMENT DESIGN

The Element Design Directorate's mission is to provide BMD System focus for engineering development within the Elements and the balancing required to achieve integration. This includes a continuous assessment of Element specific capability to support the bottoms up development of capability specifications, verification of those specifications, assessment of both common development items and element risks. Also included is the management of the BMD System Blue Team that is structured to assess the inherent robustness of the BMD System to responsive ballistic missile threats and derive solutions (operational, hardware and software) to correct potential shortfalls.

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